



Diversity of weed species in mustard fields of Manda Upazila of Naogaon District, Bangladesh

Urmi Sarker, Mahbubur Rahman AHM[✉]

Plant Taxonomy Laboratory, Department of Botany, Faculty of Life and Earth Sciences, University of Rajshahi, Rajshahi-6205, Bangladesh

Corresponding Author:

*Department of Botany, Faculty of Life and Earth Sciences,
University of Rajshahi, Rajshahi-6205,
Bangladesh

E-mail: drrahmanahmm@ru.ac.bd, drrahmanahmm@gmail.com, ahmmahbubur_rahman@yahoo.com

Phone: 880 721 751485, Mobile: 88 01714657224

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General Note

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ABSTRACT

Diversity of weed species in mustard fields of Manda Upazila of Naogaon district, Bangladesh was carried out from April 2016 to March 2017. A total of 31 weed species under 25 genera belonging to 17 families were collected and identified. Amaranthaceae, Asteraceae, Polygonaceae were dominant families with high species diversity. Out of the total number of species, *Centella asiatica* (L.) Urban, *Sonchus asper* (L.) Hill and *Glinus oppositifolius* L. was rare species in the study area. Thirty (30) medicinal plants have been

documented with their uses for the cure of more than 29 diseases. For each species voucher number, scientific name, Bangla name, English name, family name, phenology and medicinal uses were provided.

Keywords: Species Diversity, Weed Flora, Medicinal Uses, Manda, Naogaon, Bangladesh

1. INTRODUCTION

Weeds are plants growing where they are not wanted. On farms, plants are considered weeds if they grow among crops, in forest plantations, or on pasture where animals graze. A weed is any plant that requires some form of action to reduce its effect on the economy, the environment, human health and amenity. Weeds are also known as invasive plants. Weeds typically produce large numbers of seeds, assisting their spread. They are often excellent at surviving and reproducing in disturbed environments and are commonly the first species to colonize and dominate in these conditions. A weed can be an exotic species or a native species that colonizes and persists in an ecosystem in which it did not previously exist. Weeds can inhabit all environments; from our towns and cities through to our oceans, deserts and alpine areas.

Etymologically, "weed" derives from the Old English word for "grass" or "herb," but during the Middle Ages the meaning has changed to indicate an undesirable plant that grows where it is not wanted, especially among agricultural plots. This has historically been the primary meaning of the word, although in the nineteenth century, American writers grew increasingly aware that calling a plant a "weed" was an arbitrary human judgment, as there is no natural category of weeds. In the words of Ralph Waldo Emerson, a weed "is a plant whose virtues have not yet been discovered." Today, biologists tend to share that opinion, since many of the plants that are designated as weeds are, in fact, closely related to popular crops. Indeed, "weed" has fallen out of usage among biologists, although those who study agriculture still find the term useful in discussions of weed control and management. While the term "weed" generally has a negative connotation, many plants known as weeds can have beneficial properties. A number of weeds, such as the dandelion (*Taraxacum*) and lamb's quarter, are edible, and their leaves or roots may be used for food or herbal medicine. Burdock is common over much of the world, and is sometimes used to make soup and medicine in East Asia (Burdock Root, 2015). Some weeds attract beneficial insects, which in turn can protect crops from harmful pests. Weeds can also prevent pest insects from finding a crop, because their presence disrupts the incidence of positive cues which pests use to locate their food. Weeds may also act as living mulch, providing ground cover that reduces moisture loss and prevents erosion. Weeds may also improve soil fertility; dandelions, for example, bring up nutrients like calcium and nitrogen from deep in the soil with their taproot, and clover hosts nitrogen-fixing bacteria in its roots, fertilizing the soil directly. The dandelion is also one of several species which break up hardpan in overly cultivated fields, helping crops grow deeper root systems. Some garden flowers originated as weeds in cultivated fields and have been selectively bred for their garden-worthy flowers or foliage. An example of a crop weed that is grown in gardens is the corn cockle, (*Agrostemma githago*), which was a common weed in European wheat fields, but is now sometimes grown as a garden plant (Pearman & Dines, 2002).

The importance of studying angiosperm weed species diversity and medicinal uses has been realized and carried out in Bangladesh by Ara *et al.* (2011, 2013), Rahman *et al.* (2007), Rahman *et al.* (2008a, 2008b), Rahman *et al.* (2013), Rahman (2013a, 2013b, 2013c, 2013d, 2013e, 2013f), Rahman and Akter (2013), Rahman *et al.* (2014a, 2014b), Rahman and Gulshana (2014), Rahman and Rahman (2014), Rahman and Rojonigondha (2014), Rahman *et al.* (2015), Rahman and Parvin (2014, 2015), Roy *et al.* (2016), Sultana and Rahman (2016), Uddin and Hassan (2010), and Uddin *et al.* (2013, 2014). The present research was to first record of diversity of weed species and medicinal uses in mustard fields of Manda Upazila of Naogaon District, Bangladesh.

2. MATERIALS AND METHODS

Study area: Manda Upazila (Naogaon district) area 375.94 sq km, located in between 24°37' and 24°53' north latitudes and in between 88°35' and 88°51' east longitudes. It is bounded by Mahadebpur Upazila on the north, Baghmara and Mohanpur Upazilas on the south, Naogaon sadar, Raninagar and Atrai Upazilas on the east, Niamatpur and Tanore Upazilas on the west. *Population* Total 352560; male 178853, female 173707; Muslim 317807, Hindu 32302, Buddhist 287, Christian 18 and others 2146. *Water bodies* Main rivers: atrai, Shiva; Manda and Uthrail beels are notable. *Administration* Manda Thana was formed in 1943 and it was turned into an upazila in 1987 (BPC, 2001).

Survey method: Investigation on the weed species growing in mustard fields was carried out from April 2016 to March 2017. A total of 31 weed species belonging to 25 genera and 17 families were collected and identified. A survey on the determination of the location of different species was made and a list was prepared to be acquainted with the plants available in the selected area. All the

species were noted and time to time the areas were visited to see when they flowered. For the morphological study, different types of species were examined again and again in order to see if there was any variation or not. They were collected at flowering stages and herbarium specimens were prepared as vouchers. In this practice standard method was followed (Alexiades, 1996). Medicinal information was also recorded. A total of 46 informants having an age range 17-62 years were interviewed using semi-structured interviewed method. Among them 17 were female and rest 29 were male. Regular field studies were made in the study area during the period. The information about the plants used for various diseases was gathered through interviews and discussion with the elderly people, medicine men and traditional medical practitioners were consulted.

Plant Identification: The major collected materials were identified and described up to species with the help of Hooker (1961), Prain (1963), Kirtikar and Basu (1987), and Ahmed *et al.* (2007-2009) were consulted. For the current name and up-to-date nomenclature Pasha and Uddin (2013) and Huq (1986) were also consulted. All the collected plant specimens were kept in the Herbarium, Department of Botany, and University of Rajshahi, Bangladesh.

3. RESULTS AND DISCUSSION

Based on this study, diversity of weed species in Mustard fields of Manda Upazila of Naogaon District, Bangladesh was made that includes 31 species under 25 genera and 17 families. Amaranthaceae, Asteraceae, Polygonaceae are were dominant families with high species diversity. Distribution of weed species in the families shows variation. Asteraceae is represented by 7 species. Amaranthaceae is represented by 4 species. Polygonaceae is represented by 3 species. Each of Chenopodiaceae, Poaceae, Solanaceae, Cyperaceae are represented by 2 species. A single species in each was recorded by 10 families.

The collected information is comparable with the result of other studies in Bangladesh and abroad. A total of 56 weed species belonging to 17 families was identified in five different rice field around Vanurtaluk of Villupuram district, Tamil Nadu, India (Nithya and Ramamoorthy, 2015). Twenty four weed species under 22 genera and 14 families were studied in 9 crop fields in West Bengal, India (Mondal and Hossain, 2015). A total of 40 plant species were growing as weeds in rice fields of Kashmir Valley, which belonged to 27 genera in 19 families (Hassan *et al.*, 2015). A total of 71 weed species belonging to 65 genera and 32 families were recorded in wheat field of Rajshahi district, Bangladesh (Rahman *et al.*, 2014b). A total of 73 weed species belonged to 66 genera and 32 families are documented in paddy field of Rajshahi district, Bangladesh (Rahman and Rahman, 2014). A total of 37 weed species belonged to 36 genera and 20 families are documented in Mulberry field of Rajshahi University Campus, Bangladesh (Rahman and Mamun, 2017). A total of 23 species of 13 families were identified as weeds of wheat fields from five different localities of village Qambar, District Swat, Pakistan (Akhter and Hussain, 2007). A total of 73 weed species belonging to 65 genera and 27 families were recorded in sugarcane field of District Banu, Khyber Pakhtunkhawa, Pakistan (Khan *et al.*, 2012). Twenty-two weed species belonging to 12 families were found dominant in greengram and blackgram in Haryana, India (Punia *et al.*, 2013). A total of 39 weed species belonging to 37 genera and 19 families were recorded in mixed winter crop of Uttar Pradesh, India (Singh *et al.*, 2012). A total of 58 weed species were recorded in wheat field of Nowshera District Rajouri (J & K), India (Dangwal *et al.*, 2011). So far the information available, no published data recorded on the angiosperm weed species in the Mustard fields of Manda Upazila of Naogaon District, Bangladesh.

Table 1 Diversity of weed species in mustard fields of Manda upazila of Naogaon district, Bangladesh

| Sl.no. | Scientific name | Bangla name and English name | Family name | Phenology | Voucher number |
|--------|---|---------------------------------------|---------------|-----------|----------------|
| 1 | <i>Alternanthera sessilis</i> (L.) R.Br | SanchiShak (B) Rabbit Weed (E) | Amaranthaceae | Jan.-Dec. | US 01 |
| 2 | <i>Alternanthera ficoidea</i> (L.) Sm. | Copper leaf (B) Smooth joyweed (E) | Amaranthaceae | Jan.-Dec. | US 02 |
| 3 | <i>Amaranthus viridis</i> L. | Noteyshak (B), Green Amaranth (E) | Amaranthaceae | Jul.-Sep. | US 03 |
| 4 | <i>Amaranthus spinosus</i> L. | Katanotey (B), Spiny Amaranth (E) | Amaranthaceae | Jan.-Dec. | US 04 |
| 5 | <i>Ageratum conyzoids</i> L. | Ochunti (B), Goatweed (E) | Asteraceae | Nov.-Jun. | US 08 |

| | | | | | |
|----|---|--|------------------|-----------|-------|
| 6 | <i>Anagalis arvensis</i> L. | Juncumari (B), Blue pimpernel (E) | Primulaceae | Jun.-Aug. | US 30 |
| 7 | <i>Blumea lacera</i> (Burn. f.) DC. | Kucksim (B), Malay blumea (E) | Asteraceae | Nov.-Jul. | US 28 |
| 8 | <i>Chenopodium album</i> L. | Bathua (B), Lamb's Quarters (E) | Chenopodiaceae | Jun.-Oct. | US 05 |
| 9 | <i>Chenopodium ambrosioides</i> L. | Chendan beto(B), Wormseed (E) | Chenopodiaceae | Jul.-Sep. | US 06 |
| 10 | <i>Centella asiatica</i> (L.) Urban | Thankuni (B), Penny wort (E) | Apiaceae | Mar.-Dec. | US 11 |
| 11 | <i>Cynodondactylon</i> (L.) Pers | Durbaghas (B), Bermuda grass, cough grass (E) | Poaceae | Jul.-Dec. | US 12 |
| 12 | <i>Cyperus eragrostis</i> Lam. | Nutgrass (B), Tall flatsedge (E) | Cyperaceae | Mar.-Sep. | US 19 |
| 13 | <i>Cyperus defformis</i> L. | Small flower umbrella plant ((B), Rice sedge (E) | Cyperaceae | Jan.-Dec. | US 21 |
| 14 | <i>Eclipta alba</i> (L.) Hassak | Kalokeshi (B), Trailing eclipta (E) | Asteraceae | Jan.-Dec. | US 09 |
| 15 | <i>Gnaphalium luteo-album</i> L. | Bara karma (B), English cudweed (E) | Asteraceae | Jan.-Aug. | US 27 |
| 16 | <i>Glinus oppositifolius</i> L. | Ghimashak (B), Jima (E) | Molluginaceae | Jan.-Dec. | US 29 |
| 17 | <i>Lippia nodiflora</i> L. | Vuiokra (B), Frogfruit (E) | Verbenaceae | Jan.-Dec. | US 26 |
| 18 | <i>Leucus aspera</i> (Willd.) Link. | Shetodron (B), Thumbai (E) | Lamiaceae | Jul.-Oct. | US 16 |
| 19 | <i>Oxalis corniculata</i> L. | Amrul (B), Creeping wood sorrel (E) | Oxilidaceae | Sep.-May | US 10 |
| 20 | <i>Physalis minima</i> L. | Kopalphutki (B), Ground cherry (E) | Solanaceae | Jan.-Dec. | US 17 |
| 21 | <i>Polygonum orientale</i> L. | Bistort (B), Prince's Feather (E) | Polygonaceae | Jan.-Aug. | US 24 |
| 22 | <i>Polygonum plebeium</i> R.Br. | Nuniasaag (B), Samll knotweed (E) | Polygonaceae | Oct.-Apr. | US 25 |
| 23 | <i>Panicum colonum</i> L. | Jungle rice (B), Swamp rice (E) | Poaceae | Apr.-Dec. | US 31 |
| 24 | <i>Rumex maritimus</i> L. | Banpalong (B), Golden Dock, Small Water Dock (E) | Polygonaceae | Jun.-Sep. | US 18 |
| 25 | <i>Scopariadulcis</i> L. | Bondhoney (B), Sweet-broom (E) | Scrophulariaceae | Jan.-Dec. | US 07 |
| 26 | <i>Solanum surrattensis</i> Burm. f. | Kantikari (B), Wild eggplant (E) | Solanaceae | Jan.-Dec. | US 13 |
| 27 | <i>Sida cordifolia</i> (Burm.f.) Borss. | Berela (B), Country mallow (E) | Malvaceae | Aug.-Dec. | US 14 |
| 28 | <i>Spilanthes calva</i> DC. in Wight | Marhatitiga (B), Pellitary (E) | Asteraceae | Mar.-Apr. | US 22 |
| 29 | <i>Sonchus asper</i> (L.) Hill | Sonpalong (B), Sow thistles (E) | Asteraceae | Sep.-Jun. | US 23 |
| 30 | <i>Vicia sativa</i> L. | Ancora (B), Garden vetch (E) | Fabaceae | Jan.-Aug. | US 15 |
| 31 | <i>Xanthium indicum</i> Roxb. | Gaghra (B), Cocklebur (E) | Asteraceae | Jul.-Oct. | US 20 |

Jan.=January, Feb.=February, Mar.=March, Apr.= April, May=May, Jun.=June, Jul.=July, Aug.=August, Sep.=September, Oct.=October, Nov.=November, Dec.=December, B=Bangla, E=English

Photographs of weed species in the study area



1. *Alternanthera sessilis*



2. *Alternanthera ficoidea*



3. *Amaranthus viridis*



4. *Amaranthus spinosus*



5. *Chenopodium album*



6. *Chenopodium ambrosioides*



7. *Scoparia dulcis*



8. *Ageratum conyzoides*



9. *Eclipta alba*



10. *Oxalis corniculata*



11. *Centella asiatica*



12. *Cynodon dactylon*



13. *Solanum surattense*



14. *Sida cordifolia*



15. *Vicia sativa*



16. *Lucus aspera*

17. *Physalis minima*18. *Rumex maritimus*19. *Cyperus eragrostis*20. *Xanthium indicum*21. *Cyperus difformis*22. *Spilanthes calva*23. *Shuacus asper*24. *Polysonum orientale*25. *Polygonum plebeium*26. *Lippia nodiflora*27. *Gnaphalium luteo-album*28. *Blumea lacera*29. *Glinus oppositifolius*30. *Anagallis arvensis*31. *Panicum colonum*

Medicinally Important Weeds: The important medicinal values of weed species in mustard fields of Manda upazila of Naogaon district, Bangladesh were highlighted. A total of 30 medicinal weed species belonging to 24 genera were collected and recorded for their use in various ailments. These medicinal weeds are used by the local people to cure the following diseases, especially for alopecia, asthma, anemia, cancer, cough, cholera, dysentery, earache, eczema, fever, gonorrhea, headache, herpes, inflammation, jaundice, ophthalmia, scabies, snake-bite, skin diseases, stomachic, ulcers, urinary disorder, wound and others. The collected medicinal information of those plant species is in agreement with the result of other studies done in Bangladesh (Ghani, 2003; Yusuf *et al.*, 2009; Anisuzzaman *et al.*, 2007; Khan and Huq, 1975; Alam, 1992; Khan, 1998; Rahman *et al.*, 2010; Rahman *et al.*, 2012; Rahman *et al.*, 2013; Rahman and Kumar, 2015; Jamila and Rahman, 2016a, 2016b, 2016c; Islam and Rahman, 2017, Uddin *et al.*, 2006).

Table 2 Medicinal plants and mode of uses by the local people of Manda upazila of Naogaon district, Bangladesh

| Sl.no | Scientific name and Family name | Bangla name and English name | Parts used | Ailments | Mode of uses |
|-------|--|---------------------------------------|-------------------|---|--|
| 1 | <i>Alternanthera sessilis</i> (L.) R.Br Family: Amaranthaceae | Sanchi Shak (B) Rabbit Weed (E) | Whole plant, root | (a)Hair treatment (b)Eye disease (c)Relieve tiredness (d)Chronic liver, congestion, gastrointestinal issues and gonorrhea. | (a)The juice of the plant is an ingredient in medicinal hair oils. (b)Root extract of this herb is used as a natural remedy for serious eye disease such as cataract, burning eyes, watery eyes, and myopia.(c)The herb is used to relieve tiredness, laziness and sleepless. (d)The decoction of plant is used to treat chronic liver, congestion, gastrointestinal issues and gonorrhea. |
| 2 | <i>Alternanthera ficoidea</i> (L.) Sm. Family: Amaranthaceae | Copper leaf (B) Smooth joyweed (E) | Whole plant | (a)Anemia (b)Herpes | (a)Cooked vegetables given to anemic children. (b)The plant is also used for herpes. |
| 3 | <i>Amaranthus viridis</i> L. Family: Amaranthaceae | Noteyshak (B), Green Amaranth (E) | Whole plant, root | (a)Dysentery (b)Inflammation (c)Emollient (d)Constipation | (a)A decoction of the entire plant is used to stop dysentery and inflammation. (b)The plant is emollient and vermifuge. (c)The root juice is used to treat inflammation during urination. (d)It is also taken to treat constipation. |
| 4 | <i>Amaranthus spinosus</i> L. Family: Amaranthaceae | Katanotey (B), Spiny Amaranth (E) | Whole plant, root | (a)Gonorrhea, eczema and colic (b)Fever, urinary troubles, diarrhea and dysentery, (c)Ophthalmic and convulsion | (a)A pest of the root is used in the treatment of gonorrhea, eczema and colic. (b)The juice of the root is used to treat fever, urinary troubles, diarrhea and dysentery. (c)Plant sap is used as an eye wash to treat ophthalmic and convulsions in children. |
| 5 | <i>Anagallis arvensis</i> L. Family: Primulaceae | Juncumari (B), Blue pimpernel (E) | Whole plant | (a)Skin infection and dropsy | (a)An infusion of this herb is used in the treatment of dropsy and skin infection. |
| 6 | <i>Ageratum conyzoides</i> L. Family: Asteraceae | Ochunti (B), Goatweed (E) | Whole plant. | (a)Styptic (b)Cuts, Wounds and Bruises (c)Headache | (a)The leaves are styptic. They are dried and applied as a powder to cuts and sores. The powder absorbs the moisture of the disease and forms a layer that is removed after 1-2 days. (b)The juice of the plant is used to treat cuts, wounds & bruises. (c)Paste prepared from leaf is applied to forehead for the treatment of headache. |

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|----|--|--|----------------------------|---|---|
| 7 | <i>Blumea lacera</i> (Burn. f.) DC. Family: Asteraceae | Kucksim (B), Malay blumea (E) | Leaf, Root | (a)Fever and cough (b)Headache (c)Dog bite (d)Mouth disease and cholera | (a)The decoction of the root of <i>Blumea lacera</i> is given in a dose of 45-50 ml to treat cases of fever and cough. (b)The fresh juice of the leaves of the plant is used for headache due to sinusitis. (c)In case of a dog bite, the fresh juice of root is administered in a dose of 10 ml. (d)The root is used to cure mouth disease and with black pepper is given in cholera. |
| 8 | <i>Chenopodium album</i> L. Family: Chenopodiaceae | Bathua (B), Lamb's Quarters (E) | Whole plant | (a)Stomachache (b) Diarrhea (c) Burns (d)Joint pain | (a) <i>Chenopodium album</i> for stomach ache includes cooked leaves of <i>C. album</i> in daily diet. (b) <i>C. album</i> for diarrhea. Take fresh leaves of <i>Chenopodium album</i> , make its tea, drink it twice a day. (c) <i>Chenopodium album</i> for burns: apply leave paste of the plant over Burns. (d)2-3 tsp. of fresh <i>C. album</i> juice daily before breakfast is helpful for relieve joint pain. |
| 9 | <i>Chenopodium ambrosioides</i> L. Family: Chenopodiaceae | Chendan beto (B), Wormseed (E) | Whole plant, seed | (a)Vermifuge (b)Dysentery (c)Skin disease, eczema, ulcer | (a)Fruit well known for its vermifuge use; as bruised fruit in small doses, or juice expressed from the plant, taken straight or as a decoction in milk or water. (b)Hookworms and the amoeba which cause dysentery destroyed by the oil. (c)Decoction may be used as wash for various skin diseases of the lower limbs, eczema and ulcers. |
| 10 | <i>Centella asiatica</i> (L.) Urban Family: Apiaceae | Thankuni (B), Penny wort (E) | Whole plant | (a)Vomiting (b) Dysentery | (a)Extract prepared from whole plant taken for vomiting. (b)The plant extract also useful for dysentery. |
| 11 | <i>Cynodon dactylon</i> (L.) Pers. Family: Poaceae | Durbaghas (B), Bermuda grass, cough grass (E) | Whole plant | a)Stop bleeding and wound, (b)Dandruff, (c)Fever | (a)Paste made from whole plant is used as stop bleeding and wound. (b)Whole plant juice is applied to the scalp once a day to care. (c)Whole plant decoction is taken in doses of 30 ml daily twice for 3 days. |
| 12 | <i>Cyperus defformis</i> L. Family: Cyperaceae | Small flower umbrella plant ((B), Rice sedge (E) | Tuber, leaf | (a)Fevers (b)Tonic, stimulant, stomachic | (a)Decoction of ground tubers used for fevers. (b) The plant is considered tonic, stimulant, and stomachic. |
| 13 | <i>Cyperus eragrostis</i> Lam. Family: Cyperaceae | Nutgrass (B), Tall flatsedge (E) | Whole plant, Rhizome, root | (a)Appetiser, stomachic, fever (b)Hair and skin care | (a)Rhizomes and roots are used in appetizer, stomachic, fever. (b)The plant is also used for hair and skin care. |
| 14 | <i>Eclipta alba</i> (L.) Hassak. Family: Asteraceae | Kalokeshi (B), Trailing eclipta (E) | Whole plant, leaf | (a)Alopecia (b)Hearing ailments (c) headache (d) Toothache | (a)The entire plant is used to make a paste and applied on the scalp where hair is lost. It must be repeated for 100 days regularly for better result. The paste should be allowed to stay for one hour before washing off with normal water. (b)Juice of leaves, amla juice, garlic juice along with other herbs like vasa, black pepper, cockscomb seeds is used to make medicinal ear drops. (c)The juice of the plant which mixed with oil and massaged on the scalp relieves |

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|----|--|---|-------------------------|---|--|
| | | | | | headache. (d)The juice of the leaves can be applied on the gums for getting relief from toothache. |
| 15 | <i>Gnaphelium luteo-album</i> L. Family: Asteraceae | Bara karma (B), English cudweed (E) | Leaf | (a)Wounds and burns (b) Discharge of blood serum or mucous secretion. | (a)Leaves useful in wounds and burns. (b) Leaves also used for internally to check discharge of blood serum or mucous secretion. |
| 16 | <i>Glinus oppositifolius</i> L. Family: Molluginaceae | Ghimashak (B), Jima (E) | Whole plant, leaf | (a)Skin disorders (b)Dizziness, diarrhea (c)Fever, joint pains, inflammation | (a)Plant juice is applied to itches and other skin disease. (b)Fresh leaves used against dizziness and to stimulate the appetite and diarrhea. (c)The plant is also used for fever, joint pains, inflammation. |
| 17 | <i>Lippia nodiflora</i> L. Family: Verbenaceae | Vuiokra (B), Frogfruit (E) | Whole plant, root | (a)Fever (b)Cough and cold (c)Gastric troubles | (a)The juice of the plant is cooling and used to relieve fevers. (b)The aroma of the inhaled plant is breathed in to treat cough and cold. (c)The juice of the root is used in the treatment of gastric troubles. |
| 18 | <i>Leucus aspera</i> (Willd.) Link. Family: Lamiaceae | Shetodron (B), Thumbai (E) | Leaf | (a)Insect bites (b)Fever (c)Skin eruptions and painful swellings. | (a)Leaf pest is used in snake bites. (b)Leaf extract is taken in fever. (c)The juice of leaves is used in chronic skin eruptions and painful swelling. |
| 19 | <i>Oxalis corniculata</i> L. Family: Oxilidaceae | Amrul (B), Creeping wood sorrel (E) | Whole plant | (a)External wounds (b)Indigestion and diarrhea in children (c)Jaundice. | (a)15-20 ml of fresh juice (at one time) is applied 2-3 times per day on external wounds caused by injury, for 3-4 days to kill germs and to stop bleeding from wounds. (b)It helps indigestion and diarrhea in children, by boiling the leave juice in butter milk and drink. (c)Useful in treating jaundice by taking buttermilk mixed with 2 tsp. of the juice of this herb, twice a day. |
| 20 | <i>Physalis minima</i> L. Family: Solanaceae | Kopalphutki (B), Ground cherry (E) | Leaf | (a)Earache | (a)The juice of the leaves, mixed with mustard oil and water, has been used as a remedy for earache. |
| 21 | <i>Polygonum orientale</i> L. Family: Polygonaceae | Bistort (B), Prince's Feather (E) | Leaf, stem, fruit, seed | (a)Hernias (b)Hepatitis, sloughing ulcers tympanites and cancer (c)Flatulence, fevers and thirst. | (a)The leafy stems or used in the treatment of hernias. (b)A of the ripe fruits is used in the treatment of hepatitis , sloughing ulcers, tympanites and cancers.(c)The seed is said to relieve flatulence, fevers and thirst. |
| 22 | <i>Polygonum plebeium</i> R.Br. Family: Polygonaceae | Nuniasaag (B), Samll knotweed (E) | Seed, root | (a)Bowel complaints | (a)The crushed seeds are cooked and eaten as a remedy for bowel complaints. The roots are similarly applied. |
| 23 | <i>Panicum colonum</i> L. Family: Poaceae | Jungle rice (B), Swamp rice (E) | Whole plant, root | (a)Carbuncles, sores, spleen trouble cancer (b)Wounds (c)Prevention and tonic | (a)The plant is a folk remedy for treating carbuncles, sores, spleen trouble, and cancer. (b)The shoot and/or the roots are applied as a styptic to wounds. (c)The plant is a tonic, acting on the spleen and also preventative. |
| 24 | <i>Rumex maritimus</i> | Banpalong (B), | Leaf, | (a)Burns (b)Colic, | (a)Plant is refrigerant. Leaves are applied to |

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|----|--|---|-----------------------------------|--|--|
| | L. Family: Polygonaceae | Golden Dock, Small Water Dock (E) | root, seed | syphilitic ulcers (c)Anti- inflammatory. | burns. (b) An infusion of leaves is given in colic, externally applied to syphilitic ulcers. (c)Both alcoholic and aqueous extract of the seed at the doses of 100 mg/kg showed significant anti- inflammatory activity. |
| 25 | <i>Scoparia dulcis</i> L. Family: Scrophulariaceae | Bondhoney (B), Sweet-broom (E) | Whole plant, root | a)Hair treatment (b)Eye disease (c)Relieve tiredness (d)Chronic liver, congestion, gastrointestinal issues and gonorrhea. | (a)The juice of the plant is an ingredient in medicinal hair oils. (b)Root extract of this herb is used as a natural remedy for serious eye disease such as cataract, burning eyes, watery eyes, and myopia. (c)The herb is used to relieve tiredness, laziness and sleepless. (d)The decoction of plant is used to treat chronic liver, congestion, gastrointestinal issues and gonorrhea. |
| 26 | <i>Solanum surrattense</i> Burm. f Family: Solanaceae | Kantikari (B), Wild eggplant (E) | Whole plant, leaf | a)Chronic bronchitis (b)Migraine, asthma and headache (c)Swollen and arthritis (d)Hair fall and dandruff. | a)The powder of the plant administered to cure chronic bronchitis. (b)In migraine, asthma and headache leaves juice of kantakari is administrated through nasal. (c)The pest of the whole plant is applied on swollen and painful joints in arthritis. (d) Leaves juice also used in scalp to cure hair fall and dandruff. |
| 27 | <i>Sida cordifolia</i> (Burm.f.) Borss. Family: Malvaceae | Berela (B), Country mallow (E) | Whole plant | (a)Joint pain, headache and inflammation (b)Rheumatism (c)Fevers, bloody fluxes, elephantiasis. | (a)The paste is prepared with water and applied externally to relieve joint pain, headache and inflammation. (b)Juice of the whole plant pounded with a little water is given for rheumatism. (c)In infusion they are prescribed in fevers as a cooling medicine and to check bloody fluxes, for elephantiasis. |
| 28 | <i>Spilanthes calva</i> DC. in Wight Family: Family: Asteraceae | Marhatitiga (B), Pellitory (E) | Whole plant, leaf, root | (a)Toothache (b)Tuberculosis (c)Scabies | (a)A leaf extract is taken for toothache. (b)A paste of the roots is taken for the treatment of tuberculosis. (c)Juice of the plant and flower head is rubbed in scabies. |
| 29 | <i>Sonchus asper</i> (L.) Hill Family: Asteraceae | Sonpalong (B), Sow thistles (E) | Whole plant, latex, leaf | (a)Ulcers (b)Warts (c)Inflammatory swellings. | (a)Juice of the plant used for cleaning and healing ulcers. (b)The latex in the sap of the plants is used in the treatment of wart. (c)The leaves are applied as a poultice to inflammatory swellings. |
| 30 | <i>Xanthium indicum</i> Roxb. Family: Asteraceae | Gaghra (B), Cocklebur (E) | Whole plant, root, seed | (a)High fever (b)Bladder (c)Sores | (a)A decoction of the root has been used in the treatment of high fevers and to help a women expel the afterbirth. (b) A decoction of the seeds has been used in the treatment of bladder complaints. (c)A poultice of the powdered seed has been applied as a slave on open sores. |

Interview with local people in the study area



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